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ference of longitude independent of the right ascension of the stars. Both observers then reversed the axis of their transit instruments; Cambridge selected a second pair of stars from the list, and the same series of observations was repeated as with the first pair. The error of collimation was thus eliminated, and by confining the observations to stars within about five degrees of the zenith, the influence of azimuthal error was avoided. The level being read at every reversal, the correction for it was applied by computation. In this manner it is hoped to eliminate every possible source of error, except that which arises from the personal habits of the observers. In order to eliminate this error, a *travelling* observer worked for a time at Cambridge and compared with the Cambridge astronomer; then came to New York and compared with the New York astronomer; then returned to Cambridge again, and so on as often as was thought necessary. Finally, at the conclusion of the campaign all the observers were to meet at Cambridge and make a general comparison of their modes of observation.

On one or two nights the preceding programme was changed, and each observer telegraphed both star A and star B.

2. "On the peculiar cooling effects of Hydrogen and its compounds in cases of Voltaic Ignition." By W. F. Stevenson, Esq., F.R.S.

In this communication the author gives several theorems which he considers to be established by the experiments cited in a pamphlet which he published, entitled "The Non-decomposition of Water distinctly proved." He then states, that when we apply the principle of these theorems to Mr. Grove's discovery of the cooling properties of hydrogen, it will be found to admit of a most simple solution: "for instance, when the coil of platinum wire is connected with the poles of the electric battery, and the current is established, it is evident that the electric matter thus passed through the wire must escape at the contrary end (the air with which the wire is surrounded not being a conductor of electricity), and as the quantity of electric matter thus transmitted is considerable, and its exit from the wire confined but rapid, that commotion before noticed (in one of the author's theorems) necessarily ensues and causes the ignition of the wire; but when the coil of wire is immersed in hydrogen, which is a conductor of electricity, it is evident that the electric matter must be, at the same moment, abstracted or conducted from every portion of the wire, and consequently the commotion or rush of the electric matter at the extremity of the wire, which causes the ignition, is suspended and the comparative coolness of the wire is the necessary result."

3. Postscript to a paper "On the Ganglia and Nerves of the Heart," with two drawings. By Robert Lee, M.D., F.R.S.

The author states that since his former communication was presented to the Royal Society he has made a very minute dissection in alcohol of the whole nervous system of the young heifer's heart.

In this preparation the distribution of the ganglia and nerves over the entire surface of the heart, and the relations of these structures to the blood-vessels and muscular substance, are considered by the author to be far more fully displayed than in any of his former dissections. He states, that on the anterior surface there are distinctly visible to the naked eye, ninety ganglia or ganglionic enlargements on the nerves, which pass obliquely across the arteries and the muscular fibres of the ventricles from their base to the apex; that these ganglionic enlargements are observed on the nerves, not only where they are crossing the arteries, but where they are ramifying on the muscular substance without the blood-vessels; that on the posterior surface the principal branches of the coronary arteries plunge into the muscular substance of the heart near the base, and many nerves with ganglia accompany them throughout the walls to the lining membrane and columnæ carneæ.

The author considers that, in the accompanying beautiful drawings, Mr. West has depicted with the greatest accuracy and minuteness the whole nervous structures demonstrable in this preparation on the surface of the heart; but that the ganglia and nerves represented in these drawings constitute only a small portion of the nervous system of the heart, numerous ganglia being formed in the walls of the heart which no artist can represent.

4. "On the Aurora Borealis which occurred on the evening of Friday, the 17th of November, 1848." By Mr. R. Smith, Blackford, Perthshire. Communicated by P. M. Roget, M.D., F.R.S.

The author states that the 17th of November was a fine day with a clear sky and bright sunshine: towards evening the sky became cloudy and a few drops of rain fell, but it soon again became clear, with the exception of a few fleecy clouds that here and there dimmed its brightness. At 6<sup>h</sup> 45<sup>m</sup> a soft and gentle light began to illumine the northern region of the sky; and at 7 o'clock a considerable portion of it was covered with dark-red streams of light towards the east; while streamers moving to and fro, arrayed in colours of golden and silvery hues, overspread the south and north. About 8 o'clock there appeared near the zenith, and upon the magnetic meridian, a ring of an elliptical form, from which proceeded in all directions towards the horizon, beams or columns of light, giving to the heavens the appearance of a splendid vault, with its top adorned with a crown or wreath; while around and within the vault were to be seen clouds of brilliant light flashing towards and from the crown or central circle of the aurora, sometimes tinged with prismatic rays, at other times intensely white and lucid. About half-past nine nearly the whole of the ærial canopy was clad with clouds of a bright red colour, casting a curious reddened hue over the objects on the surface of the earth. After a short period of time had elapsed, the red colour began to diminish in intensity, and was again replaced by the white dome. However, in various parts of the sky the red colour still remained, principally in the north-west, south-west, and north-east. Between the hours of twelve and one beams